

# Life Sciences 7A: Cell and Molecular Biology

**Class Meeting Time:** Tuesdays and Thursdays, 8:00 AM - 9:15 AM

**Location:** La Kretz Hall 110

**Online Text:** *How Life Works* by Morris, J *et al.* 2e, with LaunchPad (hard copy optional)

**LaunchPad Website:** <http://www.macmillanhighered.com/launchpad/morris2e/6884874>

**CCLE Course Site:** <https://ccle.ucla.edu/course/view/17F-LIFESCI7A-3>

*For any administrative issues please visit: Life Sciences Core Education Office  
Hershey Hall, Room 222 (310) 825-6614 and ask for SAO*

## **Jump to Section:**

[Welcome to Our Course](#)

[About Our Instructors](#)

[Our Inclusive Learning Environment](#)

[Student Resources for Support and Learning](#)

[What You Will Learn in this Course](#)

[Course Logistics](#)

[How Your Learning Will Be Assessed](#)

[How To Be a Rockstar in LS 7A \(Tips for Success\)](#)

## **Welcome to Our Course!**

---

How does life work? This profound question has inspired thinkers, inventors, and explorers throughout human history. It forms the basis for the study of agriculture, medicine, ecology, microbiology, and countless other fields in the life sciences. In this course, we will begin to explore this question, focusing on some of the fundamental processes underlying the function of all living systems. Our exploration will begin by examining the chemistry of life and how these chemical principles contribute to the formation of membranes and structure of cells, as well as the way by which cells assimilate substances from their environments needed for growth in a process called cellular metabolism. We will continue on to learn about some of the critical processes that drive cellular function and proliferation, including transcription, translation, DNA replication, DNA recombination, DNA repair, and cell division. Although an entire lifetime of study, let alone one course, is not enough to form a complete answer to our question of how life works, our hope is that you will leave this course inspired to seek out the answers at every turn and equipped with the basic knowledge to launch your exploration of the awesome field of biology at UCLA.

# About Our Instructors

---

## **Course Instructors:**

Dr. Jeffrey Maloy

Office Hours: Tuesdays 3:00-5:00 PM

Office Hours Location: 316 Hershey Hall

Office: 122 Hershey Hall

Email: [jmaloy@ucla.edu](mailto:jmaloy@ucla.edu)

Dr. Erin Sanders

Office Hours: Wednesdays 2:30-3:30 PM

Zoom OH: Saturdays 1-2 PM

Office: 126 Hershey Hall

Email: [erins@ceils.ucla.edu](mailto:erins@ceils.ucla.edu)

## **Course Teaching Assistants (TAs):**

TAs are here to help you learn by facilitating class discussion and problem solving during lectures and leading discussion sections. They also will contribute to the evaluation of your class assignments and grading.

**TA Name**

**Email**

## **Course Learning Assistants (LAs):**

LAs are UCLA undergraduate students who have completed this course (or a similar course). They are here to help you learn by fostering class discussion and problem solving during lectures and discussion sections. LAs also will hold office hours to answer questions. LAs are not responsible for evaluating your work or assigning grades.

**LA Name**

**LA Name**

## Our Inclusive Learning Environment

---

UCLA values diversity and inclusion. We expect everyone in this class to contribute to a respectful, welcoming, and inclusive environment to support the learning of all other members of the class. If there are aspects of the instruction or design of this course that result in barriers to your inclusion or accurate assessment or achievement, please notify us.

Students needing academic accommodations based on a disability should contact the Center for Accessible Education (CAE) at (310) 825-1501 or present in person at Murphy Hall A255. CAE will assess all requested accommodations and communicate appropriate with us. Any students with CAE approval for proctoring arrangements during exams will need to please inform us (or your TA) prior to the date of the exam. When possible, students should contact CAE within the first two weeks of the quarter to allow reasonable time to coordinate accommodations. For more information, please visit the CAE website: <http://www.cae.ucla.edu/>.

## Student Resources for Support and Learning

---

As a UCLA undergraduate, you may experience challenges such as struggles with academics, finances, or your personal well-being. UCLA has a multitude of resources available to all students. Many of these resources are listed below and we encourage all students to explore them as needed. If you are in immediate distress, please call Counseling and Psychological Services to speak directly with a counselor 24/7 at (310) 825-0768, or please call 911.

- **Academic Achievement Program:** AAP advocates and facilitates the access, academic success, and graduation of students who have been historically underrepresented in higher education; informs and prepares students for graduate and professional schools; and develops the academic, scientific, political, economic, and community leadership necessary to transform society. Learn more at <http://www.aap.ucla.edu/>
- **Academics in the Commons at Covell Commons:** (310) 825-9315 free workshops on a wide variety of issues relating to academic & personal success [www.orl.ucla.edu](http://www.orl.ucla.edu) (click on “academics”)
- **Bruin Resource Center:** Includes services for transfer students, undocumented students, veterans, and students with dependents. <http://www.brc.ucla.edu/>
- **Career Center:** Don’t wait until your senior year – visit the career center today! <http://www.career.ucla.edu/>
- **Center for Accessible Education (Formerly Office for Students with Disabilities):** A255 Murphy Hall: (310) 825-1501, TDD (310) 206-6083; <http://www.cae.ucla.edu/>
- **College Tutorials at Covell Commons:** (310) 825-9315 free tutoring for ESL/math & science/composition/and more! [www.college.ucla.edu/up/ct/](http://www.college.ucla.edu/up/ct/)
- **Counseling and Psychological Services Wooden Center West:** (310) 825-0768 [www.caps.ucla.edu](http://www.caps.ucla.edu)

- **Dashew Center for International Students and Scholars 106 Bradley Hall:** (310) 825-1681 [www.internationalcenter.ucla.edu](http://www.internationalcenter.ucla.edu)
- **Dean of Students Office; 1206 Murphy Hall:** This is a great general resource for all Bruins. Get help if you've experienced rape or sexual assault, report a bias incident, learn about academic integrity issues and your first amendment rights, and much more. (310) 825-3871; [www.deanofstudents.ucla.edu](http://www.deanofstudents.ucla.edu)
- **Lesbian, Gay, Bisexual and Transgender Resource Center Student Activities Center, B36:** (310) 206-3628 [www.lgbt.ucla.edu](http://www.lgbt.ucla.edu)
- **Letters & Science Counseling Service:** A316 Murphy Hall: (310) 825-1965 [www.college.ucla.edu](http://www.college.ucla.edu)
- **Library:** Get help with your research, find study spaces, attend a workshop, rent a laptop, and more. Learn more: <http://www.library.ucla.edu/>
- **Students in Crisis:** From the Office of the Dean of Students: [Faculty and Staff 911 Guide for Students](#), commonly known as the "Red Folder." This tool is intended to provide you with quick access to important resources for assisting students in need.
- **Student Legal Services; A239 Murphy Hall:** (310) 825-9894; [www.studentlegal.ucla.edu](http://www.studentlegal.ucla.edu)
- **Undergraduate Writing Center:** Peer learning facilitators (PLFs) are undergraduates who understand the challenges of writing at UCLA. Scheduled appointment and walk-in options are available, see [www.wp.ucla.edu/uwc](http://www.wp.ucla.edu/uwc) for more information about writing programs and to get assistance with your writing.
- **UCLAONE.com:** UCLA ONE is UCLA's interactive, online gateway for mentorship, professional networking, peer driven career advice and exclusive job leads. (Similar to LinkedIn for the UCLA community)

## What You will Learn in this Course

---

There are several broad learning goals we will help you achieve by the end of this course. Specifically, you should be able to:

- Differentiate between deductive reasoning and inference.
- Use deductive reasoning to solve problems about biological processes.
- Describe general trends in data presented in a table, chart, graphs, etc.
- Interpret the meaning of data as they relate to a particular biological process.
- Use experimental data to confirm or reject a hypothesis.
- Interpret the spatial and/or temporal processes depicted in a typical textbook figure or other visual model of a biological process.
- Create simple models (drawings) based on written information or data about a biological process.
- Use model-based reasoning to predict responses to an environmental change.

Additional topic-specific learning objectives will be provided each week on the LaunchPad website and in the posted lecture slides on the CCLE course site. These learning objectives provide an overview of what you should be able to do on an exam. Use these learning objectives to help you focus your pre-class reading and your studying.

Week	Topic
1	Chemistry of Life; Cell Membranes
2	Cell Organization; Energy & Enzymes (Start)
3	Energy, Enzymes, & Metabolic Pathways (Finish); Cellular Respiration
4	Photosynthesis; Nucleic Acids & Transcription (Start)
<b>MIDTERM #1:</b> Friday 10/27/17	
5	Transcription (Finish); Protein Structure & Translation
6	Protein Sorting & Trafficking; Prokaryotic Genomes & Control of Gene Expression
7	Eukaryotic Genomes & Control of Gene Expression
<b>MIDTERM #2:</b> Friday 11/17/17	
8	Genome Diversity
9	Cell Division & Cell Cycle Regulation; DNA Replication
10	DNA Recombination & Repair; Cancer
<b>FINAL EXAM:</b> Tuesday 12/12/17	

## Course Logistics

### Lectures:

Lectures will be based on the topics listed in this syllabus, and any additional handouts, readings, or videos posted on the LaunchPad website, CCLE course site, or distributed in class. We will give additional examples in the class that may not be from the text, but are chosen to help in understanding different concepts and applying various skills during the course. We will post lecture slides on CCLE the night before so that you can print them out and bring them to class. Lectures will be Bruincast (videos will be posted on CCLE) so that you can go back and review them as necessary. Please note that attendance in class is strongly encouraged and participation during lectures will be rewarded through clicker points.

### Discussion Sections:

Each week you will have the opportunity to earn 8 points for your participation in and completion of assignments during discussion section. These discussion sections are designed to: (1) Help reinforce many of the concepts you learn in class; (2) Give you the opportunity to get practice with exercises and problem sets related to lecture topics; (3) Give you the opportunity to ask questions, get feedback from TAs and LAs, and work together in groups. You must attend the section in which you are enrolled. If you anticipate missing a discussion section for which you would like to request permission to attend another section, then *prior* to that particular week (at least 7 days before your anticipated absence), you should

obtain written approval from the LS Core office in 222 Hershey Hall. The section you would like to attend must have a space open for you, and you will need to provide the LS Core office verifiable documentation to establish the basis of your anticipated absence. You also should communicate with your TA about any anticipated absences during the quarter. If there is an extenuating circumstance and you miss a discussion section, please provide verifiable documentation to the LS Core office (within 7 days of your absence) to explain your absence, the basis of which is subject to their approval.

### **LaunchPad:**

You will have weekly assignments that will be given through the LaunchPad website. These include reading assignments, animations, and simulations. The total number of points from LaunchPad will be scaled to your percentage out of 50 course points (for example, if you complete 80% of the LaunchPad assignments, you will receive 40 out of the 50 possible points toward your course grade). Because there may be assignments due throughout each week, it is a good idea to check LaunchPad at the beginning of each week to make sure you know when to complete all of your assignments.

### **Pre-Class Worksheets:**

You will have pre-class assignments due on LaunchPad before each class meeting. The goal of these assignments is to help you become familiar with material before class so that we can spend more time in class practicing with the material. We will provide pre-class worksheets each week that will help you navigate the various readings, videos, and animations that are assigned. *Completing these worksheets is optional but highly recommended.* You can earn 0.5 points of extra credit (up to 10 points total) for every pre-class worksheet that you complete thoughtfully and submit before class on CCLE.

### **Weekly Pre-Class Review Questions:**

To help ensure that you are prepared for class, you will complete review questions before each class meeting on LaunchPad beginning Tuesday of Week 1 and ending Thursday of Week 10. To prepare for each set of pre-class review questions, complete the assigned pre-class material on LaunchPad for that day. For each week, the total number of points for pre-class review questions will be scaled to your percentage out of 5 course points for a total of 50 course points. You are allowed three attempts at each set of pre-class review questions, and your highest score will be recorded. These questions will be available each week on Thursday afternoon along with the LaunchPad assignments for the following week. Each set of pre-class review questions should be completed by 7:30 AM on the morning of the corresponding lecture. These questions are open book, but are not intended to be done collaboratively with other students in the course. You are expected to work individually while completing the quizzes as this help you gauge what you know and don't know before coming to class. You should be prepared to ask questions during class or discussion sections about the concepts you struggled with when answering your quiz questions.

### **Weekly Practice Exam Questions:**

To practice the skills and reinforce the concepts you have learned each week, which will help you study and prepare for exams, you will complete practice exam questions at the end of each week on LaunchPad. These practice exam questions will become available on Thursday afternoon after the week's lectures, and will be due by the following Wednesday at 11:59 PM. Points for these practice exam questions will be

assigned based on correctness, and you will have one timed attempt to complete the questions. The points you earn on these problem sets will be worth 5 points per week for a total of 50 points in the course. You are expected to work individually on these practice exam questions. Pay attention to how you are doing on these practice problems, as the kinds of questions you see in these weekly problem sets will resemble the kinds of questions you will see on exams. If you are struggling to reason your way through these problems, please reach out to your instructors, TAs, or LAs for assistance during office hours.

**Clickers:**

iClicker is a response system that allows you to respond to questions we pose during class. A large volume of education research suggests that clickers are likely to significantly increase your learning in the classroom. Clickers are available either for purchase at the bookstore, on ebay or amazon, or through a campus clicker loan program supported by the UCLA Office of Instructional Development (OID) that you can read more about here: <http://lendme.oid.ucla.edu/>. OID can't supply clickers on loan to all eligible students, so if interested in this clicker loan program, please reserve your clicker asap. OID begins accepting clicker reservations at midnight the day before each quarter begins.

You are required to bring your clicker to class starting Tuesday of Week 1. You can use the iClicker+ or iClicker2 for participation. After you purchase a clicker you need to register your iClicker ID on the CCLE course website. There is a link on the right panel of the course webpage for iClicker registration. We will show you where to register on the first day of our class.

For each lecture session, you may earn 4 participation points (all or nothing). You will need to answer 75% of the questions on each day in order to receive credit. You are not awarded points based on correct/incorrect answers. You will be given two “free” days of participation points. This should account for any technical difficulties, absences, or forgetting your clicker. You cannot receive more than the 76 points awarded for participation (i.e. if you have perfect attendance the points for the “free days” will not be added to your final score).

Please check your clicker participation scores every week to make sure your participation credit is being scored. Contact us to address any discrepancies no later than Tuesday of Week 2. If you do not monitor your clicker participation scores throughout the quarter, you may lose participation points from the total possible at the end.

**Exams:**

We will have a review session before each midterm and the final. We will notify you in class and via an announcement on CCLE of the room location, date, and time for each review session.

You have two midterms for the course. The first midterms will be Friday, October 27 from 5:00–7:00 PM and the second midterm will be Friday, November 17 from 5:00–7:00 PM. The final exam will be Tuesday, December 12 from 6:30-9:30 PM. Failure hand in an exam will result in a zero for that exam.

You must take the exams at the scheduled date/time unless you obtain written permission stating otherwise from the LS Core office in advance of an anticipated absence (i.e. religious observance). At

least 7 days before your anticipated absence, you will need to submit verifiable documentation to the LS Core office in 222 Hershey Hall establishing the basis of your anticipated absence, subject to their approval. Please also discuss anticipated absences with us prior to Friday of week 2 (October 13, 2017). If there is an extenuating circumstance causing you to miss an exam, please provide verifiable documentation to the LS Core office (within at 7 days of your absence) to explain your absence, the basis of which is subject to their approval. If approval is not granted, then failure to appear and take the exam will result in a zero for that exam.

No cell phones, smart watches, or similar types of devices are allowed during exams. Accordingly, you may not use cell phones as a clock to keep time or as a calculator. Please leave these items in your backpack and turned off or submitted to a TA/exam proctor. Be prepared to leave your backpacks and personal items (including hats) at the front of the room when taking your exams.

Material for the exams will be taken from lectures, the text, additional posted readings and videos, problems that have been posted on LaunchPad, the CCLE course website, material from discussion sections, and worksheets or clicker questions/problem sets done during lecture. You will get a set of learning objectives every week that will help you figure out what you need to be able to do to succeed on an exam. Focus on mastering these learning objectives rather than trying to memorize all of the course material.

There will be a mix of multiple choice and true/false questions on the exams. Each exam will cover all material through Wednesday of the exam week. The final exam will be cumulative. All exam scores will be posted to MyUCLA. You will be able to review your midterms during TA office hours up until Friday of Week 9. You will receive a copy of your Scantron answers for your exams to keep, but you will not be given the exam packets for the midterm or final exams.

### **Course Materials:**

Please protect the integrity of all course materials and content. By enrolling in this course, you agree to honor this request. Be mindful of the hard work and time that our instructors and TAs in the LS Core put into creating course materials such as exam and quiz questions, worksheets, lecture videos, and Bruincasts. Please do not upload course materials not created by you onto third-party websites or share content with anyone who is not enrolled in our course. We are grateful for your cooperation in honoring this important request.

### **Enrollment (including Changing Discussion Sections):**

In the event that we are at maximum enrollment capacity and you would like to enroll in this course, please monitor the Schedule of Classes in case someone drops the course. If you have other enrollment concerns, please go to the LS Core office in 222 Hershey Hall where you can talk to a Student Affairs Officers (SAOs) for the Life Science Core Education Department. We and the SAOs are unable to provide students permission to enroll (PTE) numbers.

Please note that you are not permitted to switch enrollment in discussion sections after the second week of the quarter. If you would like to switch sections during the first week but there are no spots available in



the desired section, you need to find another student who agrees to switch sections with you. To make the switch in discussion sections official with the registrar, you both will need to go to the LS Core office in 222 Hershey Hall and discuss your intention to switch sections in person with an SAO.

## How Your Learning will be Assessed

---

### Course Grading:

We are committed to making sure the assessment of your learning in this course is comprehensive, fair, and equitable. Your grade in this class will be based on the number of points you earn out of the total number of points possible and is not based on your rank relative to other students. Furthermore, grades are assigned without strict limits on the proportion of each letter grade given in the course.

If the class mean is 75% or higher, letter grades will be based on a straight scale using the following thresholds for grade cut-offs: A range from 90-100%, B range from 80-89.9%, C range from 70-79.9%, D range from 60-69.9%, and F given to 59.9% or lower. Within each letter grade range, a minus will be assigned to the bottom three percentage points and a plus will be assigned to the top three percentage points (i.e. 80-82.9% is a B-, 87-89.9% is a B+). If the class mean is lower than 75%, the scale will be adjusted to compensate (e.g. 89% may become an A-). Under no circumstances will grades be adjusted down. You can use the straight grading scale as an indicator of your *minimum* grade in the course at any time during the course. You should keep track of your own points so that at any time during the quarter you may calculate your minimum grade based on the total number of points possible at that particular time. If and when, for any reason, you have concerns about your grade in the course, please come and speak with us or your TA so that we can discuss study techniques or alternative strategies to help you.

### Point Breakdown:

<u>Assignment</u>	<u>Points Possible</u>
Midterm 1	90
Midterm 2	120
Final Exam	200
Discussion section participation	80
Lecture participation (clicker points)	76
LaunchPad assignments	50
Weekly pre-class quizzes	50
<u>Weekly practice exam questions</u>	<u>50</u>
<b>Total Points</b>	<b>716</b>

### Regrading policy:

Any request for a regrade must be made within one week of the assignment being returned to you. If you think there has been a simple addition error on your assignment then write a note explaining the error, attach this to the front of the assignment and turn it into the LS Core office. If the error is confirmed, then

the points will be added to your score before the end of the quarter. If you think there was an error in grading that is not an addition error, write a brief note explaining why you think more points should be awarded, attach this to the front of the assignment and turn it into the LS Core office. In the event that you do turn in a regrade, you should make a photocopy for your own records. All regrades (except addition errors) will be done at the end of the quarter after we have calculated final grades. If the points you request will affect your final grade then we will reevaluate the assignment for the contested points.

### **Academic Integrity - A Bruin's Code of Conduct:**

UCLA is a community of scholars committed to the values of integrity. In this community, all members including faculty, staff, and students alike are responsible for maintaining the highest standards of academic honesty and quality of academic work. As a student and member of the UCLA community, you are expected to demonstrate integrity in all of your academic endeavors. When accusations of academic dishonesty occur, the Office of the Dean of Students investigates and adjudicates suspected violations of this student code. Unacceptable behavior include cheating, fabrication, plagiarism, multiple submissions without instructor permission, using unauthorized study aids, or facilitating academic misconduct. Please review our campus' policy on academic integrity in the UCLA Student Conduct Code:

<http://www.deanofstudents.ucla.edu/Student-Conduct-Code>.

With respect to our course, examples of academic dishonesty include giving answers on assignments to someone else, receiving answers from someone else, turning in any written work that is not your own for points in our course, copying passages from websites, copying passages from your or any other textbook on any graded material in the course, or bringing a classmate's clicker to class to get participation points for them when they are absent. If you engage in these types of unacceptable behaviors, then you will receive a zero as your score for that assignment. If you are caught cheating on an exam (e.g., using notes, using cell phones or other smart devices to send, receive, or research an answer, looking on someone else's exam, allowing someone else to look at your exam for answers, etc.), then you will receive a score of zero for the entire exam. These allegations will be referred to the Office of the Dean of Students and can lead to formal disciplinary proceedings. Being found responsible for violations of academic integrity can result in disciplinary actions such as the loss of course credit for an entire term, suspension for several terms, or dismissal from the University. Such negative marks on your academic record may become a major obstacle to admission to graduate, medical, or professional school.

We cannot make exceptions to our campus' policy on academic integrity, and as we hopefully have communicated effectively here, penalties for violations of this policy are harsh. Please do not believe it if you hear that "everyone does it". The truth is, you usually don't hear about imposed disciplinary actions because they are kept confidential. So our advice, just don't do it! Let's embrace what it means to be a true Bruin and together be committed to the values of integrity.

## How to be a rock star in LS 7A (Tips for success)

---

There are many ways for you to show us what and how you are learning, through your effort, interaction and class participation, application of scientific thinking to solve real world problems, and performance on assignments and exams. This class has been structured to help all students get the support and guidance needed to succeed in your learning. The following tips will help you be successful in this class and in other classes throughout your career at UCLA.

Action	Description
<b>Ask questions!</b>	Please ask questions about things you don't understand. If you don't want to ask your questions in class, ask in office hours or on the discussion forum on CCLE.
<b>Pre-class and post-class assignments</b>	Besides giving you an opportunity to earn points for the course, the assigned activities help you prepare for class, apply your knowledge, and practice exam-style questions.
<b>Participate in lectures and discussion sections</b>	During class, we will encourage you to think and problem solve. Interacting with your peers during group work and participating in class discussions also will help reveal what you thought you understood but actually don't quite get yet, and so can direct your studying.
<b>Individually review your notes after class</b>	Make reviewing your notes a daily activity. Spend 15 - 30 minutes in the afternoon after each class going over your notes and the clicker questions, and make sure to write down anything that is confusing or any questions that you may have. These make for excellent questions to ask on the CCLE discussion forums or during office hours.
<b>Come to office hours</b>	We are here to help you as much as we can in any way possible. Please come to office hours if you have questions or concerns about the course material. Visit your TA and LA office hours, too. Don't wait until the end of the quarter to come see us, as we won't be of much help if it is too late!
<b>Work in groups</b>	Working with each other both in and out of class is highly encouraged. Ask your peers questions, makeup practice tests for one another, and use each other for support and help throughout the quarter. If you want help finding a study group, let us know.